

# Jesse Chaulk, P.Eng

[in LinkedIn](#) | [www.jessechaulk.com](http://www.jessechaulk.com) |  Calgary, AB, CA

## Skills

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- Python | PostgreSQL | MySQL | Redis | Docker | Linux | systemd | Flask | Gunicorn | Nginx | Jira | C++ | ObjectiveC | Git | Refactoring
- AWS | EC2 | RDS | Cloud Computing | CI/CD | Pytest | Unit Testing | OOP | Jupyter | NLP | spaCy | NumPy | AI/ML systems
- Microservices | Distributed Systems | Backend | Hugo SSG | Cloudflare | REST APIs | Technical Blogging | Data Engineering

## Experience

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### Lead Software Engineer (Backend)

Acuspire, Inc

Calgary, AB, Canada

05/2021 - Present

- **Modernized** a group of highly coupled **Python** monolith services that had reached their **scalability** and **maintainability** limits
- Re-designed and **containerized** a low latency geographic search service and **reduced memory** requirements by over **90%**
- **Rebuilt** and containerized a document attribute search service to achieve an **80% reduction** in cache update times
- Extracted a set of highly coupled NLP models from a **nested Python monolith** and developed a **horizontally scalable** containerized classification and vectorization service
- Designed a **low latency** vectorized document cache system using **PostgreSQL**, **Redis clusters**, and **Python** workers that reduced system downtimes by over **98%** (from 16 hours down to under 10 minutes)
- **Upgraded** an **advanced NLP** language model with a new containerized model that ran **10 times faster**
- **Re-architected** and **rebuilt** the **entire recommendation system backend** to reduce API latencies by **75%**, downtimes by over **98%**; increased daily recommendation capacity by a **factor of 200** on a single node

### Senior Software Engineer

Ci2 Group, Inc

Calgary, AB, Canada

03/2020 - 05/2021

- Employed **creative thinking**, **first principles analysis** to write software (**Python**, **graphs**, interactive cytoscape.js visualization) and provided technical leadership that saved a data center relocation contract worth **40% of the company's portfolio**
- Developed a suite of data processing **REST API integrations** that queried data from the company's PSA software and returned results **100 times faster** than its predecessor service
- Developed a data processing engine using (**Python**, **Pandas**, **httplib**, **asyncio**), deployed it as a **secure REST API**, and then used it to create a suite of PowerBI dashboards that presented actionable insights that informed business decisions moving forward
- Performed software product requirements gathering, wrote feasibility and scoping studies, and lead a software engineering team with **four (4) direct reports**

### Software Engineer

Consultant

Calgary, AB, Canada

10/2015 - 03/2020

- Successfully **analyzed ten (10) complex engineering workflows** and **developed** a suite of custom applications (with **Python backends**) that enabled a consulting company to keep a contract **worth 20% of their portfolio**
- Developed customized data processing applications (in **Python**) that **reduced** the time a geoscience team spent on geological analysis and reporting tasks by over **99%** (down from **60 hrs/week** to under **10 mins/week**)
- Presented **compelling and actionable talks** on Digital Transformation, **Data Science (AI/ML)**, and industry trends to executive management teams
- Created general-purpose **small object detection** and recognition technology using **TensorFlow**, **Python**, **NumPy** to help automate material cost estimates based on engineering drawings, achieved **accuracies over 98%** (even on low quality images)

### Mechanical Engineer

Jacobs, Inc

Calgary, AB, Canada

11/2010 - 10/2015

- Developed Data Analytics tools using Excel / VBA to process, analyze, and validate data
- **Led** the Jacobs mentoring & professional development program.
- **Collaborated** with diverse teams of technical and non-technical professionals to successfully deliver energy projects.

### iOS Software Engineer

Independent

Calgary, AB, Canada

05/2009 - 09/2010

- **Head Knowledge – Now you Know!:** Designed, developed, and sold an educational iOS application (ObjectiveC)

## Education

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### Bachelor of Science

University of Calgary

Calgary, AB, Canada

09/2005 - 04/2009

- Major in Mechanical Engineering (With Distinction)

## Peer Reviewed Publications

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- J. C. Kwan, **J. M. Chaulk** and A. O. Fapojuwo, "Artificial Neural Networks-based Ambient RF Energy Harvesting with Environment Detection", in 2021 IEEE 94th Vehicular Technology Conference, Virtual, **Sep. 2021**, DOI: 10.1109/VTC2021-Fall52928.2021.9625536
- J. C. Kwan, **J. M. Chaulk** and A. O. Fapojuwo, "A Coordinated Ambient/Dedicated Radio Frequency Energy Harvesting Scheme Using Machine Learning," in IEEE Sensors Journal, vol. 20, no. 22, pp. 13808-13823, **Nov. 2020**, DOI: 10.1109/JSEN.2020.3003931.